

Taphozous kapalgensis, a new species of Sheath-tailed Bat from the Northern Territory, Australia

BY JOHN L. MCKEAN* AND GORDON R. FRIEND*

Introduction

During the course of ecological research work in the CSIRO study area at Kapalga in the Alligator Rivers Region, Arnhem Land, one of the authors collected a distinctive Sheath-tailed Bat that defied identification. Until recently, there was a lack of resident biologists in northern Australia and it is to be expected that faunistic surveys carried out by southern Australian and foreign institutions would not record all species in a given area. Such failures are inevitably due to limitations of time and money, or the lack of specialist knowledge and equipment necessary to obtain the more cryptic forms. Apart from this new *Taphozous*, the last decade has also seen the discovery of *Hipposideros diadema inornatus* (McKean, 1970) and *Eptesicus douglasi* (Kitchener, 1976) and it is likely that further additions to the chiropteran fauna of the Northern Territory will be made in the future.

Family EMBALLONURIDAE

Taphozous kapalgensis new species

Type Specimen

Australian National Wildlife Collection, CSIRO Division of Wildlife Research, Reg. No. CM.4800; male skin and skull, collected on 20 September 1978 by G. R. Friend.

Type Locality

'Kapalga', at the edge of the western flood plain of the South Alligator River, near Rookery Point, N.T. (lat. 12°32'S,

long. 132°23'E). The bats were spotlighted and shot at night in an area of open woodland on the edge of a black soil plain. The dominant tree species in the area was *Eucalyptus papuana* with a stand of *Pandanus spiralis sens. lat.* along the plains margin, and odd scattered trees of *Gardenia megasperma* and *Brachychiton diversifolium* throughout. During the monsoon or wet season, an extensive sedge swamp develops across the plains but in the dry season the water evaporates leaving a few permanent pools along the margins. Such a pool occurs opposite the area where the bats were collected.



Fig. 1. Skull of holotype of *Taphozous kapalgensis*.
Photograph: J. Estbergs



Fig. 2 Lower jaw of holotype of *Taphozous kapalgensis*.
Photograph: J. Estbergs

*Division of Wildlife Research, CSIRO, P.O. Box 39998, Winnellie, Northern Territory, 5789.

Description

A typical representative of the genus *Taphozous* with a deep frontal depression between the relatively large eyes, and the tail perforating the interfemoral membrane and appearing on its upper surface. The species has a prominent radio-metacarpal pouch, and a well developed gular sac, at least in males. The tragus closely resembles that of *T. georgianus* Thomas, as illustrated by Troughton (1925). The ears are normal for this genus but have a comparatively dense covering of orange brown hairs on the internal surface.

The pelage is fine and rather long being up to 9 mm in length on the hind neck. The hair of the ventral surface is grey brown, except on the chin where it is orange. The hair of the dorsal surface is grey brown tipped orange particularly on the head. The upper surface of the patagium is covered in orange fur along the edge of the humerus, radius, femur and tibia, and around the edge of the body and over the interfemoral membrane to as far as the point where the tail protrudes. A band of long white hair 5-11 mm in breadth extends over the ventral surface of the patagium between the humerus and the femur. The ventral surface of the patagium is also furred with short buffy hair along the outer edge of the radius. Shortly after collecting, the extended wing membrane was noted as being orange brown closest to the body and radius and blackish for the remainder of the wing except for the outer tips which were whitish. This is barely discernible in the dry skin.

The skull does not have the frontal depression as deeply excavated as it is in *T. georgianus*. As is typical in the subgenus *Taphozous* the auditory bullae are not complete. They measure 4.8 mm in length. The palatal and interorbital regions are very narrow. The edge of the basisphenoid pits is circular in outline, their posterior margin lying 3.2 mm from the median part of the notch of the foramen magnum.

The dentition is similar to that of *T. georgianus* in the shape of the teeth, except that the upper canines are longer (4.0 mm), more slender, and do not project outwards. The inflection of the rise at the anterior end of the lower jaw is only slight, and not sharp or abrupt as in many other *Taphozous* species. Two subadult specimens lacked the orange tipping to the chin and dorsal pelage and the more juvenile of the two lacked a developed sagittal crest. Photographs of the holotype skull are given in Figs. 1 and 2. Measurements of the type and other specimens are given in Table 1.

The baculum of one of the paratypes (CM.4804) was compared with those of *T. flaviventris* Peters and *T. georgianus*. The baculum of *T. kapalgensis* was slender, curved in outline and 2.0 mm long. That of *T. flaviventris* was straight and slender, bifid at the base with a knob at the tip and a length of 1.4 mm. The baculum of *T. georgianus* was a tiny stump 0.4 mm in length.

Specimens Examined

The holotype and paratypes A. N. W. C. Nos. CM.4804 subadult ♂ skin, skull and baculum, CM.4805 subadult ♂ alcoholic specimen and skull and CM.4806 adult ♂ alcoholic specimen, and skull. The paratypes were all collected on 18 January 1979 at the same locality as where the holotype was taken.

Discussion

A survey of relevant literature indicates that *T. kapalgensis* may have its closest affinities with *T. leucopleurus* Dobson of Flores. *T. leucopleurus* is smaller however, and may lack the tricoloured wing membrane.

If *T. kapalgensis* is indeed endemic to the Arnhem Land region its zoogeographical situation parallels that of the endemic Arnhem Land pigeon *Ptilinopus alligator* (Collett) whose closest relative *P. cinctus* (Temminck) also occurs in the Lesser Sundas.

TABLE I

Measurements of holotype and other specimens of *Taphozous kapalgensis* new species in millimetres and grams

Measurements	Holotype ad. ♂ CM4800	Paratype sub.ad. ♂ CM4804	Paratype sub.ad. ♂ CM4805	Paratype ad. ♂ CM4806
Total length	102.0	—	—	—
Tail	22.0	21.9	21.8	22.5
Wingspan	420.0	—	—	—
Forearm	61.0	58.5	60.4	59.1
Tibia	24.6	24.0	23.7	24.1
Hindfoot with claw	12.6	12.8	12.8	12.6
Ear length	18.5	21.6	19.9	18.3
Ear breadth	12.7	12.1	14.0	12.6
Tragus length	5.4	5.4	5.2	5.1
Weight	26.0	—	—	—
Skull, greatest length	21.4	21.5	20.8	21.3
Condylbasal length	21.2	—	20.4	20.8
Condylcanine length	19.8	19.5	19.9	20.0
Zygomatic breadth	13.5	13.5	13.3	13.1
interorbital breadth	6.7	5.8	6.2	6.1
Intertemporal breadth	5.0	4.9	5.1	5.3
Braincase breadth	10.3	10.4	10.1	10.1
Braincase depth	7.9	8.5	7.9	7.7
Palatal breadth M ¹ M ³	9.7	8.9	9.2	9.1
Post palatal length	10.6	10.4	10.5	10.3
Maxillary tooth row	9.7	8.5	9.1	9.1
Lower jaw C-M ₃	10.8	10.1	10.3	10.0
Length of basisphenoid pits	4.4	4.5	4.3	4.1

Acknowledgements

Mr J. E. Hill of the British Museum (Natural History) kindly provided measurements of *T. leucopleurus*. Mr Johnny Estbergs photographed the skull of the type of *T. kapalgensis* Mr G. C. Richards prepared various bacula and Dr John H. Calaby provided relevant literature and manuscript appraisal.

Postscript

A female specimen of *Taphozous kapalgensis* was collected on 18 July 1979 in similar habitat within 2 km of

the type locality. This specimen was similar in pelage to the holotype male, and possessed a well developed gular sac.

REFERENCES

- Kitchener, D. J. (1976). *Eptesicus douglasi* a new Vespertilionid bat from Kimberley, Western Australia. *Rec. West. Aust. Mus.* 4: 295-301.
- McKean, J. L. (1970). A new subspecies of the Horseshoe Bat *Hipposideros diadema* from the Northern Territory, Australia. *W.A. Nat.* 11: 138-140.
- Troughton, E. Le G. (1925). A revision of the genera *Taphozous* and *Saccolaimus* (Chiroptera) in Australia and New Guinea, including a new species, and a note on two Malayan forms. *Rec. Aust. Mus.* 14: 313-339.

Photoflora '80

Entries are invited for Photoflora '80, the biennial photographic competition for colour slides of Australian native plants and natural history subjects conducted by the Native Plants Preservation Society. Entries close on 6th February 1980, and entry forms with full particulars are now available from the Photoflora Secretary, Miss B. C. Terrell, 24 Seymour Avenue, Armadale, 3143.

The following screenings have already been arranged:

Malvern, 12th March — Native Plants Preservation Society.

Ripponlea, 13th March — National Trust Photographic Committee.

Horsham, 14th March — Horsham Field Naturalists' Club.

Bendigo, 15th March — Bendigo Field Naturalists' Club.

Ringwood, 17th March — Ringwood Field Naturalists' Club.